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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,253	09/28/2000	Rustin W. Allred	TI-29300	6936

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EXAMINER

RAMAKRISHNAIAH, MELUR

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 09/04/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/672,253

Applicant(s)
Rustin W. Allred et al.

Examiner
Melur. Ramakrishnaiah

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.

- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.

- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.

- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Sep 28, 2000

2a) ☐ This action is **FINAL**.

2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-22 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-4, 6-13, and 15-22 is/are rejected.

7) ☒ Claim(s) 5 and 14 is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

4) ☐ Interview Summary (PTO-413) Paper No(s). _____

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

5) ☐ Notice of Informal Patent Application (PTO-152)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

6) ☐ Other:

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Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 7-8, 9-13, 15-17, 18-22, are rejected under 35 U.S.C 102(b) as being anticipated by Schulhof (US PAT: 4,610,024).

Regarding claims 1, 9, and 18, Schulhof discloses self adaptive graphic equalizer operable to equalize the affects of an audio system on an audio signal comprising: an adaptive graphic equalizer (8, figs. 1-2) having a plurality of filters (16, 18, 20, 22, 24, 26, fig. 2), the plurality of equalizing filters having different center frequencies and spanning a predetermined audio band bandwidth, each equalizing filter being operable to filter an ith sub-band of the audio signal, a plurality of first filters (22, 24, 26, fig. 2) coupled to an audio system, each first filter being operable to filter an ith sub-band of an output signal of the audio system, a plurality of second filters (16, 18, 20, fig. 2) receiving the audio signal, each second filter operable to filter an ith sub-band of the audio signal, and a gain adjuster in (10, fig. 2) operable to adjust the ith sub-band of the adaptive graphic equalizer in response to a difference ith sub-band of the filtered output signal from a plurality of first filters and the ith sub-band of the filtered audio signal from a plurality of second filters (col. 2 lines 34-67, col. 3 lines 1-59), time averaging the N sub-bands of the filtered

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output signal, time averaging the N sub-bands of the filtered audio signal, normalizing the time averaged N sub-bands filtered output signal and time averaged N sub-bands of the filter audio signal, determining the difference between the ith filtered sub-band of the audio signal and the ith filtered sub-band of the output signal, adjusting the gain of the ith equalizing filter of an adaptive graphic equalizer (10, fig. 2) on response to the difference between the ith filtered sub-band of the audio and output signals, the equalizing filters having different center frequencies and spanning a predetermined audio bandwidth, and generating an equalized audio signal and providing the equalized audio signal to the audio system (col. 2 lines 53-67, col. 3 lines 1-58).

Regarding claims 2-4, 7-8, 10-13, 15-17, 19-22, Schulhof further teaches the following: a first plurality of lowpass filters (for example 22, fig. 2), each lowpass filter being operable to filter an ith sub-band of the filtered audio signal, a second plurality of lowpass filters (20, fig. 2), each lowpass filter being operable to filter an ith sub-band of the filtered audio signal, a mean normalization circuit in (28, 30, 32, fig. 2) operable to normalize the ith sub-band lowpass filtered audio signals and the ith sub-band lowpass filtered output signal and generate an ith sub-band of mean normalized output signals (col. 3 lines 46-58), a comparator coupled to the mean normalization circuit and operable to determine whether the ith sub-band lowpass filtered output signal is less than the ith sub-band of mean-normalized audio signal, the gain adjuster in (10, fig. 2) of the ith sub-band of the graphic equalizer operable to increment or decrement the gain of the ith sub-band of the graphic equalizer in response to the comparison operation (col. 3 lines 46-58), a difference circuit in (28, 30, 32, fig. 2) coupled to the mean-normalization circuit in (28, 30, 32,

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fig. 2) and operable to determine the difference between the *i*th sub-band lowpass filtered output signal and *i*th sub-band mean-normalized audio signal, and gain adjuster in (10, fig. 2) of the *i*th sub-band of the graphic equalizer operable to add or subtract the difference from the gain of the *i*th sub-band of the graphic equalizer (col. 3 lines 24-59), plurality of first and second filters each comprises bandpass filters (24/18, fig. 2), audio system is a speaker (8, fig. 2) microphone (12, fig. 2) combination system, generating the sound from the equalized audio signal using the speaker (8, fig. 2), measuring the generated sound using a microphone (12, fig. 2), adjusting the given *i*th equalizing filter comprises incrementing the *I* from 1 through *N* (col. 3 lines 24-59).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schulhof in view of Odlen (US PAT: 4,340,780).

Regarding claim 6, Schulhof does not explicitly teach the following: adaptive graphic equalizer comprises ten overlapping sub-bands, each sub-band having filters between + or - 18db.

However, Odlen discloses self-correcting audio equalizer which teaches the following: adaptive graphic equalizer comprises ten overlapping sub-bands (col. 5 lines 29-50).

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Thus, it would have been obvious to one of ordinary skill in the art at the time invention was made to modify Schulhof's system to provide for the following: adaptive graphic equalizer comprises ten overlapping sub-bands, each sub-band having filters between + or - 18db as this arrangement would provide better frequency selection for processing audio signals in the audio system for compensating for the differences between input and output audio signals as taught by Odlen, thus providing better audio quality for the user.

5. Claims 5 and 14, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melur Ramakrishnaiah whose telephone number is (703) 305-1461. The examiner can normally be reached on Monday to Friday from 7 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708. The fax phone number for this Group is (703) 305-9508.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

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7. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 308-6306, (for formal communications intended for entry)

Or:

(703) 305-9508 (for informal or draft communications, please label

"PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Sixth Floor (Receptionist).


Melur. Ramakrishnaiah

PRIMARY EXAMINER

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